REMARKS

Claims 1, 7, and 9-11 will be pending in this application after the Examiner enters the forgoing amendment.

The Examiner rejects claims 1-4, 7, and 8 under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 4,915,884 to Capdeville et al.; and rejects claims 1-8 under 35 U.S.C. §103 as being unpatentable over WO 96/25367 in view of Capdeville et al.

Applicants have cancelled claims 2-6 and 8 and amended claims 1, 7, 9 and without prejudice or disclaimer, and added claims 10 and 11 to more appropriately define the invention. Support for the recitation of sodium chloride may be found, for example, on page 8, lines 30-31 of Applicants' Specification, International Publication No. WO 99/40035. Applicants respectfully submit that the pending claims are patentable over the art of record, and are otherwise in condition for allowance.

Capdeville et al. disclose a process for production of granular material for water treatment:

> This invention relates to a process for the production of a granular material for water treatment. The invention seeks to obtain a material specifically adapted to the particular method of water treatment for which the material is intended. In particular, the invention applies to the production of a granular material for biological water treatment (as by fixed microorganisms or a fixed biomass) or physicochemical treatment . . .

(Capdeville et al. col. 1, lines 5-12).

Capdeville et al. also disclose:

> The first embodiment for obtaining these superficial microporosities comprises selecting an adjuvant which is a water soluble mineral salt (calcium chloride, iron sulfate, sodium bicarbonate, etc.), in order to create these microporosities by subsequent solubilization of the grains of this salt situated on the surface of the granule upon subsequent contact of the granule with an aqueous phase . . .

(Capdeville et al. col. 4, lines 19-26).

Capdeville et al. also disclose:

> FIG. 1 illustrates, in a partial view on a greatly enlarged scale, a granule, with its plastic

> matrix I and its adjuvant micrograins distributed both on the surface 2 and in the interior of the matrix 3. The spherical granules thus obtained are immersed in an aqueous acid bath, containing 30% by weight of hydrochloric acid. . . .The granules thus obtained, observed under a microscope, have the appearance shown in FIG. 2: the micrograins of the surface 2 have been dissolved by a transformation into calcium bicarbonate and then dissolved in the water. They have left in their place micro-cavities such as shown schematically at 4. . . .

(Capdeville et al. col. 6, lines 42-55).

Capdeville et al. also disclose:

> The final step of the process comprises grafting onto the anionic sites created in the preceding step a mineral polyelectrolyte . . . There is shown in FIG. 4 a granule after this polyelectrolyte treatment. Each anionic site has fixed by chemisorption a chain of polyelectrolyte. . .

(Capdeville et al. col. 7, lines 3-16).

Capdeville et al. also disclose:

> 2. Use of the Material
>
> The granules thus made are arranged in a bioreactor 7 such as shown schematically in FIG. 5, being present in the form of a vertical column containing an expansible bed 8. . . . The city water to be treated is introduced by a conduit 11 above the distributor and a recirculation of the treated water is assured . . .

(Capdeville et al. col. 7, lines 25-28).

WO 96/25367 discloses the use of inert mineral grains acting as a weighting material carried on the surface of the granules.

In contrast, each of claims 10-11 recites a method of treating waste water, the method comprising placing loose particulate material in a vessel, the material characterised by granules of plastics material carrying weighting material, the weighting material being grains of sodium chloride and being incorporated substantially wholly within the granules such that the grains of sodium chloride are substantially unexposed at the surfaces of the granules, and the surfaces of the granules being provided with concavities to provide a habitat for microorganisms effective in waste water treatment; and circulating waste water in the vessel, to contact the waste water with microorganisms

in the concavities. (Base Claim 10). No reasonable combination of the art of record suggests this method of interrelating waste water with the recited granules provided with concavities to provide a habitat for microorganisms. Capdeville et al. does describe a granular material for use in waste water treatment in which, during manufature of the material, the material has concavities formed on the surface. In Capdeville et al.'s subsequent manufacturing step, however, these cavities are filled with a mineral polyelectrolyte, thereby precluding the "concavities to provide a habitat for microorganisms effective in waste water treatment" in applicants' recited invention.

In other words, Capdeville et al. state that the mineral polyelectrolyte is favorable to the fixation of microorganisms, but Capdeville et al. do not suggest that the concavities themselves provide a habitat for microorganisms effective in waste water treatment.

Each of claims 1 and 9 is patentable as each recites loose particulate material for use in waste water treatment, said material characterised by granules of plastics material carrying weighting material, the weighting material being grains of sodium chloride and being incorporated substantially wholly within the granules such that the grains of sodium chloride are substantially unexposed at the surfaces of the granules, and the surfaces of the granules being provided with concavities to provide a habitat for microorganisms effective in waste water treatment. (Base claim 1).

Claim 7 is patentable as it recites a method of manufacture of loose particulate material for use in waste water treatment, said method comprising incorporating a weighting material within granules of plastics material so that the weighting material is substantially wholly carried within the granules, and contacting the granules with grains of a soluble substance, at an elevated temperature, to coat the granules with the soluble substance grains, and subsequently dissolving the soluble substance grains from the coating to provide the surfaces of the granules with concavities to serve as a habitat for

microorganisms effective in waste water treatment, the weighting material and the soluble substance grains both being grains of sodium chloride.

In view of the foregoing amendment and remarks, applicant respectfully submits that claims 1, 7, and 9-11, as amended, are patentable and that the Application is otherwise in condition for allowance. Applicants respectfully request the reconsideration of the Application and the timely allowance of these claims.

If there are any other fees required for entry of this amendment, or for any other reason, please charge such fees to the undersigned attorney's Deposit Account No. 10-0077.

If the Examiner has any questions about this amendment, applicants' representative would appreciate discussing this amendment with the Examiner. Applicants' representative, Jerome Jackson, can be reached at 703-684-4840.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as shown below, with text being added by the instant amendment shown underlined and text being deleted by the instant amendment enclosed in brackets ("[. . .]").

1. (Amended) Loose particulate material for use in waste water treatment, said material characterised by granules of plastics material carrying weighting material so that the particles have an average density of approximately 1.0g/cc, the weighting material being grains of sodium chloride and being incorporated substantially wholly within the granules such that the grains of sodium chloride are substantially unexposed at the surfaces of the granules [at least a proportion of said weighting material being carried within the granules], and the surfaces of the granules being provided with concavities to provide a habitat for microorganisms effective in waste water treatment.

Cancel claims 2-6.

7. (Amended) A method of manufacture of loose particulate material for use in waste water treatment, said method comprising incorporating a weighting material within granules of plastics material so that the weighting material is substantially wholly carried [at least a proportion of the weighting material is carried] within the granules and the particles have

an average density of approximately 1.0g/cc, and contacting the granules with grains of a soluble substance, at an elevated temperature, to coat the granules with the soluble substance grains, and subsequently dissolving the soluble substance grains from the coating to provide the surfaces of the granules with concavities to serve as a habitat for microorganisms effective in waste water treatment, the weighting material and the soluble substance grains both being grains of sodium chloride.

Cancel claim 8.

9. (Amended) A waste water treatment method characterised by charging a treatment vessel with waste water and loose particulate material according to claim 1 [any one of claims 1 to 6], and aerating the waste water by means of aerators.